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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/692,042

10/22/2003

Koji Naraoka

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08/23/2006

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EXAMINER

RIVERO, MINERVA

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,042	NARAOKA, KOJI	
	Examiner	Art Unit	
	Minerva Rivero	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuyuguchi *et al.* (US Patent 5,083,302), hereinafter Tsuyuguchi.

4. Regarding claims 1 and 11, Tsuyuguchi discloses an objective lens drive for adjusting the tilt of an optical axis of an objective lens to be used for radiating light onto a recording medium, the drive comprising (Col. 2, Lines 16-17):

a lens holder for holding said objective lens (Col. 2, Lines 34-35; Col. 5, Lines 61-61);

a suspension which is at one end thereof fixed to said lens holder and which supports said lens holder in a cantilever fashion (Col. 6, Lines 35-40); and

a plurality of multilayer piezoelectric elements which support both side surfaces of said suspension holder and rotate said suspension holder about an axis extending in a direction in which said suspension extends (Col. 6, Lines 45-51).

5. Regarding claims 2 and 12, Tsuyuguchi discloses a guide pin for axially supporting said suspension holder in the direction in which said suspension extends (Col. 5, Lines 43-47).

6. Regarding claims 3 and 13, Tsuyuguchi discloses a hinge mechanism for supporting a lower section of said suspension holder (Col. 5, Line 66 – Col. 6, Line 8; Col. 6, Lines 34-39).

7. Regarding claim 4, Tsuyuguchi discloses a recessed section is formed in the lower section of said suspension holder (Col. 5, Lines 37-40); and
said hinge mechanism is housed within said recessed section, and an interior surface of said recessed section supports said suspension holder (see element 40b in Fig. 3).

8. Regarding claim 5, Tsuyuguchi discloses said suspension supports said lens holder in a cantilever fashion so that the holder is movable in focusing and tracking direction (Col. 6, Lines 34-40; Col. 2, Lines 16-18 and 42-47); and

said multilayer piezoelectric element extends in a direction substantially perpendicular to the direction in which said suspension extends, to thereby support said suspension holder (Col. 6, Lines 26-30, see holding member 40, piezoelectric device 41, and direction X in Fig. 3).

9. Regarding claim 6, Tsuyuguchi discloses said multilayer piezoelectric element is formed by stacking a plurality of layers in the focusing direction (Col. 6, Lines 42-44, see element 41 in Fig. 3).

10. Regarding claim 7, Tsuyuguchi discloses said multilayer piezoelectric element is a piezoelectric element of bimorph type in which layers are stacked in the focusing direction (Col. 6, Lines 41-44, see element 41 in Fig. 3).

11. Regarding claim 8, Tsuyuguchi discloses said suspension has a plurality of suspension elements which laterally support said lens holder at two different heights in a cantilever fashion (*lever principle*, Col. 6, Lines 34-40; Col. 2, Lines 16-18 and 42-47); and

said multilayer piezoelectric element supports said suspension holder at a height which is substantially halfway between said two different heights (see piezoelectric element 41 and holding elements 40a-d in Fig. 3).

12. Regarding claim 9, Tsuyuguchi discloses drive means for causing displacements in opposite directions by supplying a drive voltage to a plurality of said multilayer piezoelectric elements (Col. 4, Lines 55-60).

13. Regarding claim 10, Tsuyuguchi discloses said drive means actuates a plurality of said multilayer piezoelectric elements that are to become displaced in opposite direction, to thereby rotate said suspension holder about an axis extending in the direction in which said suspension extends (Col. 4, Lines 55-60; Col. 6, Lines 26-30).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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15. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuyuguchi, in view of Kime *et al.* (US Patent 5,182,739), hereinafter Kime.

Regarding claim 14, Tsuyuguchi discloses an objective lens drive for adjusting the tilt of an optical axis of an objective lens to be used for radiating light onto a recording medium, the drive comprising (Col. 2, Lines 16-17):

a lens holder for holding said objective lens (Col. 2, Lines 34-35; Col. 5, Lines 61-61);

a suspension which is at one end thereof fixed to said lens holder and which supports said lens holder in a cantilever fashion (Col. 6, Lines 35-40);

a plurality of multilayer piezoelectric elements which support both side surfaces of said suspension holder and rotate said suspension holder about an axis extending in a direction in which said suspension extends (Col. 6, Lines 45-51).

However, Tsuyuguchi does not explicitly disclose but Kime does disclose

a tilt sensor for detecting the direction and magnitude of a tilt made between said optical disk and an optical axis of said objective lens (Col. 3, line 57); wherein

a plurality of said multilayer piezoelectric elements are actuated in accordance with the magnitude and direction of tilt detected (Col. 3, Line 66 – Col. 4, Line 7; Col. 4, Lines 10-15).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to modify the teachings of Tsuyuguchi and have a tilt sensor for detecting the direction and magnitude of a tilt made between said optical disk and an

optical axis of said objective lens, and a plurality of said multilayer piezoelectric elements actuated in accordance with the magnitude and direction of tilt detected, as disclosed by Kime, in order to maintain a disk and an optical head in orthogonal relation.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sugawara *et al.* (US Patent 5,513,121) disclose an optical head including a mechanism to correct an inclination of the optical axis.

Chang *et al.* (US Patent 6,525,332) disclose a method for detecting and compensating disk tilt.

Uchimaruru *et al.* (US Patent 5,740,150) disclose a galvanomirror for correcting a light passage of an emitted laser beam.

Wakabayashi *et al.* (US 6,791,772) disclose an objective lens driver.

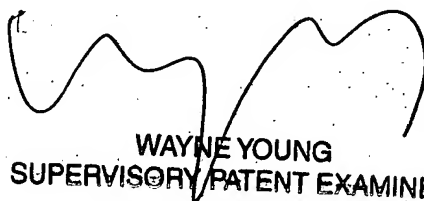
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (571) 272-7626. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MR 8/19/06



WAYNE YOUNG
SUPERVISORY PATENT EXAMINER